

# RGH Pharmacy E-Bulletin

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A joint initiative of the Patient Services Section and the Drug and Therapeutics Information Service of the Pharmacy Department, Repatriation General Hospital, Daw Park, South Australia. The RGH Pharmacy E-Bulletin is distributed in electronic format on a weekly basis, and aims to present concise, factual information on issues of current interest in therapeutics, drug safety and cost-effective use of medications.

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## Neurological uses of botulinum toxin A

The detailed pharmacology of botulinum toxin A have been discussed in a previous EBulletin (Vol 30 (4): May 26, 2008). Briefly, botulinum toxin A inhibits acetylcholine exocytosis. If no acetylcholine is available to stimulate receptors in muscle fibre, chemical denervation and muscle paralysis ensue. Botulinum toxin (especially type A) has found applications in the management of symptoms associated with various neurological disorders (see below)

### *Cervical dystonias (spasmodic torticollis)*

Cervical dystonias involve abnormal postures and involuntary twisting movements of the head and neck, leading to discomfort, disability & decreased quality of life. A randomised, double-blind, placebo-controlled trial involving 23 patients over 9 weeks found a significant improvement after 3 monthly IM injections of botulinum toxin A. No serious adverse effects were reported. Given the lack of other drug treatments for cervical dystonias, botulinum toxin is recommended as first line treatment per Therapeutic Guidelines (Neurology).

### *Spastic disorders*

Spasticity related to neurological disorders such as multiple sclerosis, cerebral palsy and post-stroke or trauma can lead to deformity, loss of function, significant pain, hygiene issues and decreased quality of life for patients and their carers.

### *Multiple sclerosis (MS)*

80% of patients with MS experience spasticity. Three studies have evaluated botulinum toxin A versus placebo, but each of these were either flawed in their randomisation or in the rating scales used to measure effect. Even so, each reported a subjective improvement in spasticity symptoms. No guidelines exist for prescribing.

### *Post-stroke or trauma*

20% of stroke patients and 75% of patients with severe brain injury post-trauma experience spasticity. Standard therapies include occupational therapy, dantrolene, baclofen and benzodiazepines, but the usefulness of these may be limited by adverse effects. Swallowing may also be an issue after a stroke. In a randomised, double-blind, placebo controlled study (n=126) patients with increased flexor tone of wrist and fingers post-stroke were given injections of botulinum toxin A or placebo. An improvement in personal hygiene, dressing, pain and limb position were reported in the treatment group (63%) compared with placebo (27%) after 6 weeks. Adverse effects were similar in each group and included pain, arm pain, headache, dizziness, muscular weakness.

### *Excessive saliva*

Excessive production of saliva may be secondary to cerebral palsy, stroke or Parkinson's disease. Anticholinergic agents are useful but may be limited by their adverse effects, especially among the elderly. Surgery and radiation therapy are other options. In two studies, patients with excess saliva secondary to Parkinson's disease reported a subjective improvement in saliva production and drooling after intraparotid injections of botulinum toxin A.

Botulinum toxin A is currently subsidised as Section 100 under the auspices of the Pharmaceutical Benefits Scheme for blepharospasm, lower limb spasticity secondary to cerebral palsy in children and spasmodic torticollis. However, it can also be used to treat the symptoms associated with other neurological diseases where other pharmacological therapies may be less desirable from an adverse effect point of view or lack in effectiveness.

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